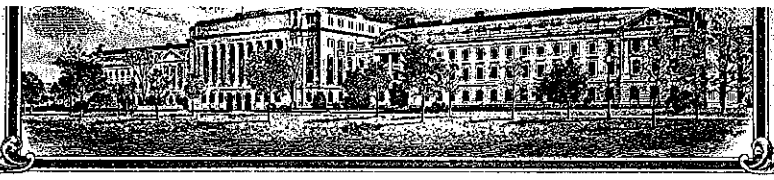

8100075

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Seed Research Division of Agrigenetics

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COMMON WHEAT

'Encore'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 14th *day of* January *in the year of our Lord one thousand nine hundred and* eighty-two.

PLANT VARIETY PROTECTION OFFICE · U.S. DEPARTMENT OF AGRICULTURE

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(9-75)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
PLANT VARIETY PROTECTION OFFICE
NATIONAL AGRICULTURAL LIBRARY
BELTSVILLE, MARYLAND 20705

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY
5417	Encore	PV NUMBER 8100075
2. KIND NAME: Common Wheat 5/12/81 YC Hard red winter	3. GENUS AND SPECIES NAME: Triticum aestivum	FILING DATE: 3/16/81 — TIME: 2:00 A.M. (P.M.)
4. FAMILY NAME (BOTANICAL): Gramineae	5. DATE OF DETERMINATION: 1976	FEE RECEIVED: $500.00 + $250.00 — DATE: 3/16/81, 10/23/81

6. NAME OF APPLICANT(S)	7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)	8. TELEPHONE AREA CODE AND NUMBER
Seed Research Division of Agrigenetics	Route 2, Box 48 Scott City, Ks. 67871	316-872-2807

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.)	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	New Mexico	5/1/75

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Kenneth L. Goertzen, President
Seed Research
Route 2, Box 48 Scott City, Ks. 67871

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* ☒ YES ☐ NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? ☒ YES ☐ NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

15. Does the applicant(s) agree to the publication of his/her (their) name(s) and address in the Official Journal? ☒ YES ☐ NO

16. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

5/25/81 (DATE) — Kenneth L. Goertzen (SIGNATURE OF APPLICANT)

(DATE) — (SIGNATURE OF APPLICANT)

13 A. Origin & Breeding History of Encore

SRI 2380 (spring habit, semi dwarf, high protein SRI line) was crossed in the greenhouse with SRI 2390 (winter habit, short semi dwarf, high protein SRI line with brown chaff). This involved hand emasculation of SRI 2380 and hand crossing with pollen from SRI 2390. No commonly grown bread wheats are involved in the parentage.

A single plant selection was made and increased from the F4 generation. Testing started with this F4 bulk. Subsequently a single plant was selected in the F8 generation. This selection was increased and tested as 5417 and ultimately became Encore. It is early, semi dwarf, brown chaff, hard red winter, bearded wheat.

Different generations produce plants that have the same appearance and performance.

Encore meets stability and variability standards for hard red winter wheat varieties.

Breeders seed is maintained from a bulk of the F8 single plant selections. Roguing of the breeders seed is practiced to remove any possible variants that result from volunteer in plot, mechanical mixtures, outcrosses, or any other atypical plants. Straw chaff variants should not exceed one per 10,000 plants.

Breeders seed is planted on ground that has been summer fallowed for at least one year.

Breeders seed is used to produce Foundation seed using the same methods to maintain breeder's seed but with less intense roguing and with larger fields involved. It is grown to meet Kansas Crop Improvement certification requirements.

Foundation seed is used to produce registered seed which is also handled to meet Kansas Crop Improvement requirements.

Registered seed is used to produce certified seed.

13 B

Encore is very early and most similar to Triumph 64 ~~in season~~ 9/21/81

Triumph 64	Encore
Very Early	Very Early
Normal ht-98cm	Semi dwf ht-88cm
Whitish yellow heads	Brown heads

5417

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-6
(2-15-73)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY

WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Seed Research

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
Route 2, Box 48
Scott City, Ks. 67871

FOR OFFICIAL USE ONLY

PVPO NUMBER 8100075

VARIETY NAME OR TEMPORARY DESIGNATION
ENCORE

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:

[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

[2] 1 = SPRING 2 = WINTER 3 = OTHER (*Specify*) _____ [2] 1 = SOFT 2 = HARD 3 = OTHER (*Specify*) _____

[2] 1 = WHITE 2 = RED 3 = OTHER (*Specify*) _____

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

[ ][ ][ ] FIRST FLOWERING [ ][ ][ ] LAST FLOWERING

4. MATURITY (50% Flowering):

[ ][0] NO. OF DAYS *EARLIER* THAN ..... [7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS

[ ][0] NO. OF DAYS *LATER* THAN ..... [7] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

7 = Triumph 64

5. PLANT HEIGHT (From soil level to top of head):

[ ][8][8] CM. HIGH

[ ][ ] CM. TALLER THAN ..... [ ] 1 = ARTHUR 2 = SCOUT 3 = CHRIS

[1][4] CM. SHORTER THAN ..... [2] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (*See reverse*):

[1] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN ⊘ 9/21/81

7. ANTHER COLOR:

[1] 1 = YELLOW 2 = PURPLE ⊘ 9/21/81

8. STEM:

[ ] Anthocyanin: 1 = ABSENT 2 = PRESENT

[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT

[ ][3] NO. OF NODES (*Originating from node above ground*)

[ ] Waxy bloom: 1 = ABSENT 2 = PRESENT

[1] Internodes: 1 = HOLLOW 2 = SOLID

[2][8] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES: ⊘ 9/21/81

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[ ] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF: ⊘ 9/21/81

[1] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (*Specify*) _____

[ ] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT

[ ][ ] MM. LEAF WIDTH (*First leaf below flag leaf*)

[ ] Flag leaf: 1 = NOT TWISTED 2 = TWISTED

[1] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT ⊘ 9/21/81

[ ][ ] CM. LEAF LENGTH (*First leaf below flag leaf*):

8100075

FORM GR-470-6 (REVERSE)

11. HEAD:

[1] Density: 1 = LAX 2 = DENSE [2] Shape 1 = CLAVATE 2 = STRAPPERING 3 = CLAVATE HER (Specify) _____

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[5] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify): _____

[ ][8] CM. LENGTH [ ][9] MM. WIDTH

12. GLUMES AT MATURITY:

[3] Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

[1] Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

[1] 1 Glabrous 2 Pubescent

[4] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[3] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[ ] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[1] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[3] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[2] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[ ] Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

[ ][6] MM. LENGTH [ ][3] MM. WIDTH [ ][ ] GM. PER 1000 SEEDS

17. SEED CREASE:

[3] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[3] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[2] STEM RUST (Races) _____

[2] LEAF RUST (Races) _____

[ ] STRIPE RUST (Races) _____

[ ] LOOSE SMUT

[2] POWDERY MILDEW

[ ] BUNT

[ ] OTHER (Specify) _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[ ] SAWFLY [ ] APHID (Bydv.) [ ] GREEN BUG [ ] CEREAL LEAF BEETLE

[ ] OTHER (Specify) _____

HESSIAN FLY RACES: [ ] GP [ ] A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering		Seed size	
Leaf size		Seed shape	
Leaf color		Coleoptile elongation	
Leaf carriage		Seedling pigmentation	

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the Handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

13 D. Botanical Characteristics of Encore

Plant Characteristics:

1. Maturity: very early, equal to Triumph 64
2. Height: semi dwarf, 88 cm. compared to 98 cm Triumph 64 - dryland
3. Habit of Growth: winter (prostrate)

Stem Characteristics:

1. Strength: excellent
2. Hollow straw

Spike Characteristics:

1. Awns: bearded (brown)
2. Shape: strap
3. Density: lax
4. Position: upright
5. Shattering: non shattering

Glume Characteristics:

1. Color: brown (lighter than Frontiersman)
2. Length: 9 mm
3. Width: 3 mm
4. Shoulder: square, narrow
5. Beak: acuminate, narrow

Kernel Characteristics:

1. Color: red
2. Length: 6.5 mm
3. Width: 2.5 mm
4. Germ: medium to large
5. Texture: hard
6. Shape: elliptical
7. Crease: mid wide D 9/4/81
8. Brush: large mid long
9. Shoulder: rounded

Quality Characteristics:

Encore is genetically high protein with good functional properties of the protein as evidenced by loaf volume.

(see attached sheet)

SOME COMPARISONS OF PROPOSED VARIFTIES AND TWO CHECKS

VARIETY	TESTING NO	SEASON	DRYLAND HEIGHT	GLUME COLOR
FRONTIERSMAN	5471	= Triumph	93 cm	BROWN
ENCORE	5417	= Triumph	88 cm	BROWN
CITATION	4885	= Triumph	73 cm	WHITISH YELLOW
BRAWNY	4714	Scout- 2 days	85 cm	BROWN
TRIUMPH 64	----	VERY EARLY	98 cm	WHITISH YELLOW
SCOUT 66	----	EARLY MIDSEASON	102 cm	WHITISH YELLOW

VARIETY	SOIL BORNE MOSAIC RES (1-5)	LODGING (1-5)	GENETICALLY HIGH PROTEIN	LEAF RUST RES. (1-5)	STEM RUST RES. (1-5)
FRONTIERSMAN	4	4	YES	5	5
ENCORE	4	4	YES	5	5
CITATION	2	4	NO	4	5
BRAWNY	-	4	YES	4	5
TRIUMPH 64	3	2	NO	2	4
SCOUT 66	2	2	NO	3	4

On all the 1-5 ratings the higher number is best rating.

Triumph was one of the more important wheats in the Haven, Kansas community when we started using that area as a test site.

Scout 66 has been used as a check variety because of its wiespread use.

QUALITY EVALUATION FROM KARL FINNEY
USDA GRAIN MARKETING RESEARCH CENTER (MIXOGRAM)
SCOTT COUNTY 1980 SAMPLES

VARIETY NAME	SAMPLE NO	WT/BU LB	FLOUR YIELD %
SCOUT 66 (CHECK)	80-2401	62.5	72.3
NEWTON (CHECK)	80-2402	62.3	70.0
FRONTIERSMAN (5471)	80-2443	62.2	71.2
ENCORE (5417)	80-2441	62.4	69.3
BRAWNY (4714)	80-2435	61.8	70.4
CITATION (4685)	80-2442	61.6	69.6

VARIETY NAME	FLOUR PROTEIN % (14% MOISTURE)	ABSORPTION %	MIXING TIME
SCOUT 66 (CHECK)	12.9	63.0	3 MIN.
NEWTON (CHECK)	11.8	61.3	3.75 MIN.
FRONTIERSMAN (5471)	15.0	63.0	3 MIN.
ENCORE (5417)	16.5	66.0	2 MIN.
BRAWNY (4714)	15.8	65.1	5 MIN.
CITATION (4685)	11.7	60.5	3.75 MIN.

SUMMARY OF DOTY LABORATORY DATA
1979 SAMPLES
(FARINOGRAPH)

VARIETY NAME	LAB NO	% GRAIN PROTEIN	SED NO.	FALLING NO.	MIN ARR	PEAK	MIXING TOL.
5471 (FRONTIERSMAN)	LB798	16.0	69	466	8	15.5	17
5417 (ENCORE)	LB799	16.7	72	457	6	10	13

	MTI	ABS	VOL CC	RATING	CRUMB SCORE	TEXTURE
5471 (FRONTIERSMAN)	20	68.5	855	EXC.+	97	CLOSE, EVEN, SILKY
5417 (ENCORE)	25	71.0	830	EXC.	97	CLOSE EVEN SILKY

SUMMARY OF SEABOARD ALLIED DATA ON
GENETICALLY HIGH PROTEIN SAMPLES 1980
(FARINOGRAPH)

VARIETY NAME	LAB NO.	TEST WT	MOISTURE	% GRAIN PROTEIN	BU/CWT FLOUR YIELD
5471 (FRONTIERSMAN)	LB80255	61.4	10.4	16.9	2.31
5417 (ENCORE)	LB80254	62.2	10.4	18.05	2.37
4714 (BRAWNY)	LB80252	61.2	10.7	15.45	2.44

VARIETY NAME	ASH	ARRIVAL TIME	PEAK	ABS.	MTI	VOL.
5471 (FRONTIERSMAN)	.44	6	15	66.0	10	1040
5417 (ENCORE)	.430	4	9	69.5	30	1065
4714 (BRAWNY)	.473	5	21.5	64.6	20	1065

QUALITY EVALUATION DATA
DIXIE PORTLAND MILLING CO.
(FARINOGRAPH DATA)
1980 SAMPLES

VARIETY	% GRAIN PROTEIN	% MOISTURE	LBS/BU TEST WEIGHT	% FLOUR EXTRACTION	% FLOUR PROTEIN	% MOISTURE
FRONTIERSMAN	16.4	11.2	62	69.8	15.0	13.1
ENCORE	17.6	11.2	63	70.9	16.2	13.0
BRAWNY	14.6	11.6	62	70.6	12.85	14.15

VARIETY	MIXING TIME	PEAK	STABILITY	MTI	ABS	VOLUME
FRONTIERSMAN	5.5	6	22	10	75.3	963
ENCORE	4	8	19	5	80.7	925
BRAWNY	6.25	9.5	18+	20	70.5	895

VARIETY	BAKING SCORE	BAKING RATING	CRUMB COLOR RATING
FRONTIERSMAN	85	GOOD	97+
ENCORE	82	GOOD	97-
BRAWNY	85	GOOD+	97+